



April 12, 2019

Ex Parte

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

**Re: Modernizing the FCC Form 477 Data Program, WC Docket No. 11-10
Connect America Fund, WC Docket No. 10-90**

Dear Ms. Dortch:

USTelecom-The Broadband Association (USTelecom, ITTA-The Voice of America's Broadband Providers (ITTA) and the Wireless Internet Service Provider Association (WISPA) and their members, (collectively "the Broadband Mapping Consortium" or "the Consortium") have proposed a long-term solution to our nation's current fixed broadband mapping issues that will meet the needs of policymakers, consumers, and broadband service providers.¹ Recent filings made by ACA,² NCTA,³ and Charter,⁴ as well as blogs posted by NCTA⁵ and Charter,⁶ also speak to the importance of more accurate and granular broadband maps but suggest solutions that would not meet those goals. We appreciate the cable industry's thoughtful suggestions and participation in this important discussion.⁷ However, their

¹ See Letter of B. Lynn Follansbee, VP Law & Policy, USTelecom to Marlene H. Dortch, Secretary, FCC, WC Dockets No. 11-10, 10-90 (Mar. 21, 2019) (*USTelecom Mar. 21 Letter*).

² See Letter from Thomas Cohen & J. Bradford Currier, Kelley Drye, Counsel for American Cable Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Feb. 25, 2019) (*ACA Feb. 25 Letter*).

³ See Letter from Steven F. Morris, NCTA, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Feb. 21, 2019) (*NCTA Feb. 21 Letter*).

⁴ See Letter from Elizabeth Andrion, SVP Regulatory Affairs, Charter Communications to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Mar. 18, 2019) (*Charter Mar. 18 Letter*).

⁵ See NCTA, *Improving Broadband Reporting and Mapping* (Mar. 21, 2019) <https://www.ncta.com/whats-new/improving-broadband-reporting-and-mapping> (last viewed 4/12/2019) (*NCTA Blog*).

⁶ See <https://policy.charter.com/blog/the-way-to-a-better-more-accurate-broadband-map/> (last viewed 4/12/2019) (*Charter April 9 Blog*).

⁷ See Letter from Steven F. Morris, NCTA, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 11-10 (Feb. 21, 2019) (*NCTA Apr. 10 Letter*).

proposed alternatives lack the key unifying component that the Broadband Mapping Consortium is looking to address in its pilot program, a process that will create more accurate broadband location data which in turn will support far more meaningful and useful broadband availability reporting for communications policy.

The Broadband Mapping Consortium agrees with NCTA that “one of the most important uses of broadband data and maps is to target subsidies to unserved areas.”⁸ USTelecom, ITTA and WISPA member companies collectively receive the largest portion of Connect America Fund (CAF) support. Each year, CAF recipients must submit to USAC the latitude and longitude of every location (home or business) newly capable of obtaining broadband service. In the course of meeting their CAF requirements these companies have learned that GIS data and geocoding resources for rural areas are very poor, incomplete, and/or inconsistent. Their on-the-ground experience with CAF led to the recognition that broadband mapping must be more granular not only to better identify unserved areas but also to provide policy makers and providers with consistent and detailed information on what is in the unserved areas in order to inform funding and network planning decisions. The problem providers have faced, however, is that to collect granular data from multiple broadband providers and have the interrelationship of that data be correct, the first need is a common geographic template. The FCC’s Form 477 fixed broadband deployment data started as zip code-based reporting, evolved to census block group reporting, and is now census block reporting. While the problems with census block reporting are well known they are not easy to address because a common geographic template for reporting granularity below the census block level does not exist.

To illustrate why the lack of a common geographic template is a problem we can look more closely at the commonalities of the proposals from NCTA and Charter to report by shapefiles.⁹ A “shapefile” is simply a data format frequently used in GIS systems. Saying providers should file shapefiles is similar to saying providers should file excel spreadsheets. While it may be true that, as Charter states, “many providers can easily and quickly produce shape files,”¹⁰ the data format is not as important as the data itself. A shapefile is a container for a number of other data files such as, in the case of a coverage area, the geometric (e.g., polygons) and geographical (e.g., latitude and longitude) information needed to render the data in a map. The lines between broadband served and unserved areas are primarily in rural areas or edge areas of population centers. These are the same areas where commercial geocoding software is frequently inaccurate and highly variable. Variability in the latitude and longitude coordinates that providers submit in their shapefiles will cause the lines between served and unserved locations to be misdrawn. For example, two providers might serve the same two addresses and want to include them in their coverage areas. The providers use different geocoding software to generate the latitude and longitude for the addresses and include that data in their shapefiles. Although they both input the same addresses, in this example, the latitude/longitude results from different geocoders vary by three miles. Thus, when the shapefile data are displayed the two providers’ coverage areas appear to not overlap, when in fact they serve the same addresses.¹¹

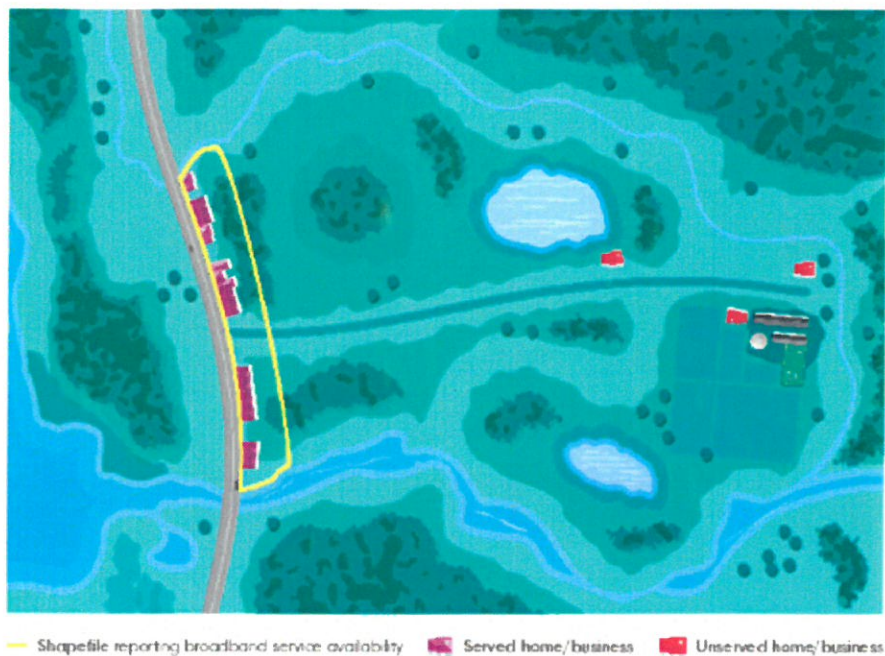
⁸ See NCTA Feb. 21 Letter at 2.

⁹ See NCTA Feb. 21 Letter; Charter Mar. 18 Letter; Charter April 9 Blog; and, NCTA Blog.

¹⁰ See Charter April 9 Blog.

¹¹ See attached, Letter of Mary L. Henze, Assistant Vice President, Federal Regulatory, AT&T Services, Inc. to Marlene H. Dortch, Secretary, FCC, WC Dockets No. 10-90 (Sep. 4, 2018) which illustrates how varied the geocoders can be.

SOLUTION: To more accurately show broadband availability, NCTA proposes that the FCC require broadband providers to submit shapefiles (electronic maps) that better reflect where service is available. Under this approach, only the area with purple homes would be reported as served. The area with red homes would be reported as unserved and would be eligible to participate in future government programs intended to subsidize construction of broadband networks.



Another problem with shapefiles submitted without an underlying frame of reference is their lack of specificity and actionable information. For example, in its blog post,¹² NCTA's illustration (reproduced above) of the "Solution" depicts purple and red "homes/businesses" with the purple described as served and the red as unserved.¹³ A yellow boundary encircles the purple locations and represents the shapefile coverage area. The caption explains that, "The area with red homes would be reported as unserved and would be eligible" for future funding programs. It is correct that under NCTA's proposal "the area" not encircled by the yellow boundary would be reported as unserved, but despite the illustration containing a few "red homes," there is no indication whether this is a comprehensive accounting of unserved locations proximate to the area within the yellow boundaries. Nor does NCTA explain how the Commission would make sense out of thousands of shapefiles containing any one of myriad data formats¹⁴ and harmonize these shapefiles with the pictorially-depicted unserved areas to cobble together a complete dataset of served and unserved locations throughout the country.

This lack of specificity in the cable industry's proposal to accurately identify the homes and businesses in the unserved areas conflicts with NCTA's acknowledgement that the Commission needs "a

¹² See NCTA Blog.

¹³ See *Id.*

¹⁴ See NCTA April 10 Letter at 3-4.

useful visual representation of the locations of buildings within any particular unserved area.”¹⁵ The lack of location-specific information thwarts the purpose of more granular data which is meant to provide policymakers and providers with consistent and detailed information on what is in the unserved areas in order to inform funding decisions. Although NCTA claims that filing shapefiles will provide more granular data more quickly, getting inadequate data more quickly and aggregating data does not fulfill the needs of policymakers and providers and does nothing to advance the nation’s broadband deployment goals.

While the Consortium agrees that submitting shapefiles may be one of several viable methods of reporting broadband coverage, we have identified numerous shortcomings with shapefile submissions including that it will only result in accurate broadband service maps if provider submissions are anchored upon a common template with consistent geocoding of addresses/locations. This is a point that the cable industry does not address, but is precisely why the Consortium proposal begins with creating the Broadband Serviceable Locations Fabric (BSLF).¹⁶ The BSLF *is* that common template. It will generate the accurate geocoding information that, as discussed above, currently does not exist with any reliable accuracy or sufficient comprehensiveness.¹⁷ The Consortium supports considering multiple methods of reporting broadband service but the first step must be creating the BSLF and harmonizing data from potentially varied reporting methods.

In its most recent supplement to its original proposal, NCTA recommends that the Commission “embrace this opportunity to move to a more accurate approach than the current assumption that any partially served census block is fully served,” and notes that with the submission of shapefiles, “[i]n conjunction with Census Bureau data on the number of households in each block and the population density of each block, the Commission could *derive an estimate of the number of people that are served and unserved in each partially served block*.”¹⁸ Despite touting this approach as more accurate, NCTA itself acknowledges that it may understate the level of coverage.¹⁹ The Consortium also observes that the current census data that would underlie this approach is nearly 10 years old and would not be updated until after the 2020 census data becomes available several years from now. And at the end of the day, this approach would only lead to “estimate[s]” based on inferences, rather than actual data. This approach would also doom CAF to target support based on “an estimate” despite policymakers’ concerns about overbuilding and compliance requirements that demand 100% deployment and reporting at a four inch level of accuracy. The Consortium’s proposal, in contrast, is designed to produce the most accurate, precise data available, and be a flexible, long-term solution that is capable of evolving with new data rather than being completely overhauled with a new static dataset that will rapidly become outdated. We do not see the value in spending limited government resources on an inaccurate, temporary and insufficient fix.

¹⁵ See NCTA Feb. 21 Letter at 3.

¹⁶ In this context, Broadband Serviceable Locations are homes or businesses where broadband service is or would be installed. The term “serviceable” does not connote a technical ability to serve or not. All identified homes and business are considered serviceable.

¹⁷ It may be that the NCTA proposal would be sufficient in urban areas where geocoding data is of better quality where it is not as challenging to ascertain where unserved locations exist, but even there accuracy would be improved by reporting upon a common template.

¹⁸ See NCTA Apr. 10 Letter at 4-5 (emphasis added).

¹⁹ See *Id.*

In the same way, the Microsoft building database NCTA references²⁰ is a valuable resource, but it will take other sources of public and commercial data to complete a picture of where broadband is available and precisely where it is not. Our proposal will use sophisticated data analytics to combine and layer multiple data sets (including the Microsoft building database) to create an authoritative geolocated dataset of America's broadband serviceable locations, encompassing locations that are currently served and identifying those that are not.²¹ Charter claims in its blog that the Consortium's proposal misses the unserved, by stating that "the use of address-level data would miss many rural areas where many locations do not have a traditional street address, once again resulting in inaccurate maps."²² However, the BSLF will by its definition include **all** broadband serviceable *locations*, both served and unserved, whether they have a traditional street address or not.²³ At its core, the BSLF will be a database of latitude and longitudes or georeferenced locations and thus is particularly well suited to the inclusion of homes and businesses that do not have traditional addresses.²⁴ Our proposal utilizes "addresses," where they are available, in the creation of the BSLF, but only to help validate the existence of serviceable locations that are identified as homes and businesses.

The Consortium shares ACA's concern that FCC Form 477 reporting requirements should not be burdensome on small providers. Under our proposal all FCC Form 477 filers would submit their customer address data as-is, which, as noted above, will be used to assist in the validation process and ensure each provider has an automatically indexed link to its locations in the BSLF.²⁵ This step will provide small and large providers with the data they need to radically simplify their FCC Form 477 reporting and will serve to lessen, not increase, the overall burdens of reporting.

The Consortium agrees with NCTA and other parties that have urged the Commission to "use crowdsourcing to supplement the Commission's current process for verifying reported data."²⁶ The Consortium embraces the power of the "boots on the ground" who have actual experience with their service availability. Such crowdsourcing will only be productive, however, if it is used to improve the accuracy of an existing map and data framework, such as the BSLF. Crowdsourcing in and of itself cannot create a map, but a productive crowdsourcing component that allows for verification of consumer submitted data and goes beyond just allowing the public to send emails to the FCC could. We believe any crowdsourcing effort should be a well-designed process that defines clear parameters for submissions as well as timelines for analysis and corrections to the data. Incorporating this information only strengthens our ability to better target future service deployments.

It is no accident that the members of the Consortium are associations and companies that have accepted the challenge of deploying to unserved areas by accepting CAF support. These companies are

²⁰ See NCTA Feb. 21 Letter at 3.

²¹ With respect to GCI's concerns about broadband mapping in Alaska, we encourage the Commission to address Alaska-specific issues separately in this context, as it has in some other circumstances, such as the Alaska Plan for broadband deployment.

²² See Charter April 9 Blog.

²³ There is an important distinction to make here between addresses and locations. While an address is the common language we use to describe an identifiable place, the location of that same place is described by latitude/longitude and represents the actual point in space where the location exists; *also see*, USTelecom Mar. 21 Letter.

²⁴ The BSLF will be designed to allow the input of non-traditional location identifiers to accompany the latitude/longitude as needed in areas such as tribal lands.

²⁵ See *Id.*

²⁶ See NCTA Feb. 21 Letter at 2.

either actively deploying or planning deployments to meet CAF requirements. They have firsthand knowledge of the difficulties that a lack of robust data sources poses for companies of all sizes. To address these difficulties, they have stepped forward to test the Consortium's proposal initially in a two-state pilot program. The objective is to, once and for all, establish a method that identifies and continuously improves our understanding of broadband unserved locations so that policymakers have the tools they need to close the broadband gap.

We encourage a continued dialogue with NCTA, ACA, and their members, and appreciate their proposals to improve broadband mapping. We look forward to sharing our pilot results with them, the Commission and with all FCC Form 477 filing entities, as well as with the Commission. We are confident that continued healthy discussions will get us all to an improved broadband mapping solution.

Please contact any of the undersigned should you have any questions.

Respectfully submitted,



By: _____
B. Lynn Follansbee
Vice President – Law & Policy
USTelecom

By: Michael J. Jacobs/s/
Michael J. Jacobs
Vice President, Regulatory Affairs
ITTA

By: Claude Aiken/s/
Claude Aiken
President & CEO
WISPA



Mary L. Henze
Assistant Vice President
Federal Regulatory

AT&T Services, Inc.
1120 20th Street, NW
Suite 1000
Washington, DC 20036

T: 202.457. 2041
M: 202-213-8942
mary.henze@att.com
att.com

September 4, 2018

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Connect America Fund, WC Docket No. 10-90

Dear Ms. Dortch:

On Thursday August 30, 2018 the undersigned and Cathy Carpino of AT&T, met with Alex Minard, Heidi Lankau, Katie King, and Gilbert Smith of the Wireline Competition Bureau. The purpose of the meeting was to discuss AT&T's experience with USAC's HUBB and issues associated with geolocating rural addresses. AT&T urged the FCC to allow CAF recipients to update and correct location information already submitted to the HUBB. In addition, large carriers who are filing hundreds of thousands of locations need a process that allows carriers to submit updated data as batch files.

Today the HUBB allows only limited updates to information on a record by record basis and does not allow changes to the latitude and longitude (lat/long) submitted for a location. AT&T has deployed to and submitted HUBB data for well over 400,000 locations and it has become very clear that standard geolocating software and techniques, at least in rural areas, are inconsistent and change often. The same address input into multiple geocoders will return widely varying lat/longs. Even the same address input into the same geocoder but several months apart will return different lat/long coordinates as underlying data is updated regularly. Presumably such updates are moving towards improved accuracy and thus carriers should be able to update the HUBB accordingly. AT&T shared several examples of the type of lat/long variance commonly seen. Each map displays the result from three industry standard geocoders for an actual CAF II address. Dots 1 and 2 (white and blue) display the result from the same geocoder queried a few months apart. Dots 3 and 4 (green and pink) are the result from a second and third geocoder. Which one is "correct"?

Another concern is that the HUBB requires lat/long coordinates to the sixth decimal place. According to USAC, this is an accuracy range of 4 inches!¹ This

¹ See <https://www.usac.org/res/documents/hc/pdf/tools/Hc-HUBB-FAQ.pdf> at p. 5 of 6.

requirement was never put out for public comment, so we do not know why this level of accuracy was considered necessary for rural areas where houses are more likely to be 50 feet to a mile apart than four inches. And given the inconsistent results across geocoders it provides only a false sense of accuracy. AT&T urged the FCC to have more open dialogue with CAF recipients about geocoding issues and HUBB requirements so that all parties can contribute to making it a better resource.

Sincerely,

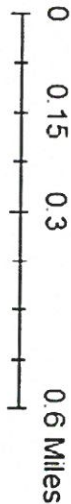
Mary L. Henze

Alexander Minard
Heidi Lankau
Katie King
Gilbert Smith

AT&T

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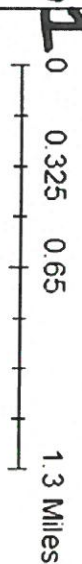
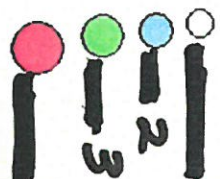


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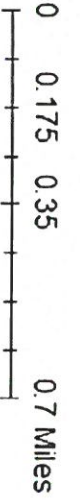
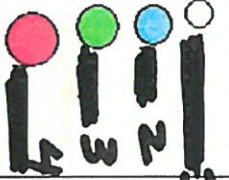


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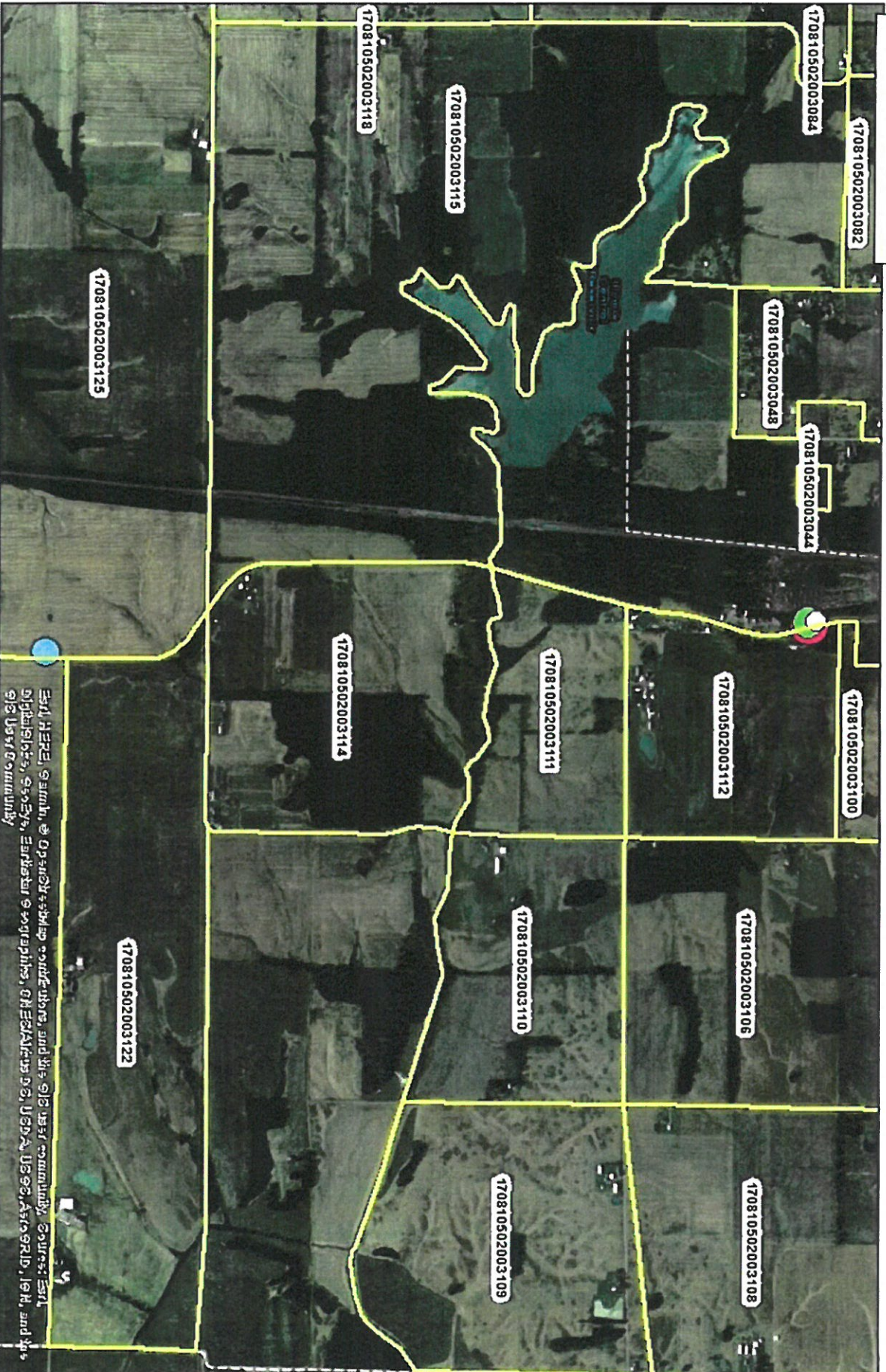
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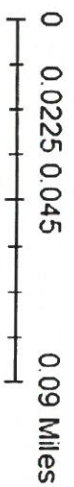
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